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SEQUENCE LISTING

<110> SYKEN, JOSH
MUNGER, KARL

<120> METHODS AND REAGENTS TO REGULATE APOPTOSIS

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<140> 09/908,992

<141> 2001-07-19

<150> 60/219,718

<151> 2000-07-19

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 35 40 45
 Ala Ser Ser Leu Thr Ser Cys Gly Pro Arg Ala Leu Leu Thr Leu Arg
 50 55 60
 Pro Gly Val Ser Leu Thr Gly Thr Lys His Asn Pro Phe Ile Cys Thr
 65 70 75 80
 Ala Ser Phe His Thr Ser Ala Pro Leu Ala Lys Glu Asp Tyr Tyr Gln
 85 90 95
 Ile Leu Gly Val Pro Arg Asn Ala Ser Gln Lys Glu Ile Lys Lys Ala
 100 105 110
 Tyr Tyr Gln Leu Ala Lys Lys Tyr His Pro Asp Thr Asn Lys Asp Asp
 115 120 125
 Pro Lys Ala Lys Glu Lys Phe Ser Gln Leu Ala Glu Ala Tyr Glu Val
 130 135 140
 Leu Ser Asp Glu Val Lys Arg Lys Gln Tyr Asp Ala Tyr Gly Ser Ala
 145 150 155 160

Gly	Phe	Asp	Pro	Gly	Ala	Ser	Gly	Ser	Gln	His	Ser	Tyr	Trp	Lys	Gly	165	170	175
Gly	Pro	Thr	Val	Asp	Pro	Glu	Glu	Leu	Phe	Arg	Lys	Ile	Phe	Gly	Glu	180	185	190
Phe	Ser	Ser	Ser	Ser	Phe	Gly	Asp	Phe	Gln	Thr	Val	Phe	Asp	Gln	Pro	195	200	205
Gln	Glu	Tyr	Phe	Met	Glu	Leu	Thr	Phe	Asn	Gln	Ala	Ala	Lys	Gly	Val	210	215	220
Asn	Lys	Glu	Phe	Thr	Val	Asn	Ile	Met	Asp	Thr	Cys	Glu	Arg	Cys	Asn	225	230	235
Gly	Lys	Gly	Asn	Glu	Pro	Gly	Thr	Lys	Val	Gln	His	Cys	His	Tyr	Cys	245	250	255
Gly	Gly	Ser	Gly	Met	Glu	Thr	Ile	Asn	Thr	Gly	Pro	Phe	Val	Met	Arg	260	265	270
Ser	Thr	Cys	Arg	Arg	Cys	Gly	Gly	Arg	Gly	Ser	Ile	Ile	Ile	Ser	Pro	275	280	285
Cys	Val	Val	Cys	Arg	Gly	Ala	Gly	Gln	Ala	Lys	Gln	Lys	Lys	Arg	Val	290	295	300
Met	Ile	Pro	Val	Pro	Ala	Gly	Val	Glu	Asp	Gly	Gln	Thr	Val	Arg	Met	305	310	315
Pro	Val	Gly	Lys	Arg	Glu	Ile	Phe	Ile	Thr	Phe	Arg	Val	Gln	Lys	Ser	325	330	335
Pro	Val	Phe	Arg	Arg	Asp	Gly	Ala	Asp	Ile	His	Ser	Asp	Leu	Phe	Ile	340	345	350
Ser	Ile	Ala	Gln	Ala	Leu	Leu	Gly	Gly	Thr	Ala	Arg	Ala	Gln	Gly	Leu	355	360	365
Tyr	Glu	Thr	Ile	Asn	Val	Thr	Ile	Pro	Pro	Gly	Thr	Gln	Thr	Asp	Gln	370	375	380
Lys	Ile	Arg	Met	Gly	Gly	Lys	Gly	Ile	Pro	Arg	Ile	Asn	Ser	Tyr	Gly	385	390	395
Tyr	Gly	Asp	His	Tyr	Ile	His	Ile	Lys	Ile	Arg	Val	Pro	Lys	Arg	Leu	405	410	415
Thr	Ser	Arg	Gln	Gln	Ser	Leu	Ile	Leu	Ser	Tyr	Ala	Glu	Asp	Glu	Thr	420	425	430
Asp	Val	Glu	Gly	Thr	Val	Asn	Gly	Val	Thr	Leu	Thr	Ser	Ser	Gly	Gly	435	440	445
Ser	Thr	Met	Asp	Ser	Ser	Ala	Gly	Ser	Lys	Ala	Arg	Arg	Glu	Ala	Gly	450	455	460

Glu Asp Glu Glu Gly Phe Leu Ser Lys Leu Lys Lys Met Phe Thr Ser
465 470 475 480

<210> 9

<211> 453

<212> PRT

<213> Homo sapiens

<400> 9

Met Ala Ala Arg Cys Ser Thr Arg Trp Leu Leu Val Val Val Gly Thr
1 5 10 15

Pro Arg Leu Pro Ala Ile Ser Gly Arg Gly Ala Arg Pro Pro Arg Glu
20 25 30

Gly Val Val Gly Ala Trp Leu Ser Arg Lys Leu Ser Val Pro Ala Phe
35 40 45

Ala Ser Ser Leu Thr Ser Cys Gly Pro Arg Ala Leu Leu Thr Leu Arg
50 55 60

Pro Gly Val Ser Leu Thr Gly Thr Lys His Asn Pro Phe Ile Cys Thr
65 70 75 80

Ala Ser Phe His Thr Ser Ala Pro Leu Ala Lys Glu Asp Tyr Tyr Gln
85 90 95

Ile Leu Gly Val Pro Arg Asn Ala Ser Gln Lys Glu Ile Lys Lys Ala
100 105 110

Tyr Tyr Gln Leu Ala Lys Lys Tyr His Pro Asp Thr Asn Lys Asp Asp
115 120 125

Pro Lys Ala Lys Glu Lys Phe Ser Gln Leu Ala Glu Ala Tyr Glu Val
130 135 140

Leu Ser Asp Glu Val Lys Arg Lys Gln Tyr Asp Ala Tyr Gly Ser Ala
145 150 155 160

Gly Phe Asp Pro Gly Ala Ser Gly Ser Gln His Ser Tyr Trp Lys Gly
165 170 175

Gly Pro Thr Val Asp Pro Glu Glu Leu Phe Arg Lys Ile Phe Gly Glu
180 185 190

Phe Ser Ser Ser Ser Phe Gly Asp Phe Gln Thr Val Phe Asp Gln Pro
195 200 205

Gln Glu Tyr Phe Met Glu Leu Thr Phe Asn Gln Ala Ala Lys Gly Val
210 215 220

Asn Lys Glu Phe Thr Val Asn Ile Met Asp Thr Cys Glu Arg Cys Asn
225 230 235 240

Gly Lys Gly Asn Glu Pro Gly Thr Lys Val Gln His Cys His Tyr Cys
245 250 255

ale

Gly Gly Ser Gly Met Glu Thr Ile Asn Thr Gly Pro Phe Val Met Arg
 260 265 270
 Ser Thr Cys Arg Arg Cys Gly Gly Arg Gly Ser Ile Ile Ile Ser Pro
 275 280 285
 Cys Val Val Cys Arg Gly Ala Gly Gln Ala Lys Gln Lys Lys Arg Val
 290 295 300
 Met Ile Pro Val Pro Ala Gly Val Glu Asp Gly Gln Thr Val Arg Met
 305 310 315 320
 Pro Val Gly Lys Arg Glu Ile Phe Ile Thr Phe Arg Val Gln Lys Ser
 325 330 335
 Pro Val Phe Arg Arg Asp Gly Ala Asp Ile His Ser Asp Leu Phe Ile
 340 345 350
 Ser Ile Ala Gln Ala Leu Leu Gly Gly Thr Ala Arg Ala Gln Gly Leu
 355 360 365
 Tyr Glu Thr Ile Asn Val Thr Ile Pro Pro Gly Thr Gln Thr Asp Gln
 370 375 380
 Lys Ile Arg Met Gly Gly Lys Gly Ile Pro Arg Ile Asn Ser Tyr Gly
 385 390 395 400
 Tyr Gly Asp His Tyr Ile His Ile Lys Ile Arg Val Pro Lys Arg Leu
 405 410 415
 Thr Ser Arg Gln Gln Ser Leu Ile Leu Ser Tyr Ala Glu Asp Glu Thr
 420 425 430
 Asp Val Glu Gly Thr Val Asn Gly Val Thr Leu Thr Ser Ser Gly Lys
 435 440 445
 Arg Ser Thr Gly Asn
 450

<210> 10
 <211> 414
 <212> PRT
 <213> Homo sapiens

<400> 10
 Val Ser Leu Thr Gly Thr Lys His Asn Pro Phe Ile Cys Thr Ala Ser
 1 5 10 15
 Phe His Thr Ser Ala Pro Leu Ala Lys Glu Asp Tyr Tyr Gln Ile Leu
 20 25 30
 Gly Val Pro Arg Asn Ala Ser Gln Lys Glu Ile Lys Lys Ala Tyr Tyr
 35 40 45
 Gln Leu Ala Lys Lys Tyr His Pro Asp Thr Asn Lys Asp Asp Pro Lys
 50 55 60

Ala Lys Glu Lys Phe Ser Gln Leu Ala Glu Ala Tyr Glu Val Leu Ser
 65 70 75 80
 Asp Glu Val Lys Arg Lys Gln Tyr Asp Ala Tyr Gly Ser Ala Gly Phe
 85 90 95
 Asp Pro Gly Ala Ser Gly Ser Gln His Ser Tyr Trp Lys Gly Gly Pro
 100 105 110
 Thr Val Asp Pro Glu Glu Leu Phe Arg Lys Ile Phe Gly Glu Phe Ser
 115 120 125
 Ser Ser Ser Phe Gly Asp Phe Gln Thr Val Phe Asp Gln Pro Gln Glu
 130 135 140
 Tyr Phe Met Glu Leu Thr Phe Asn Gln Ala Ala Lys Gly Val Asn Lys
 145 150 155 160
 Glu Phe Thr Val Asn Ile Met Asp Thr Cys Glu Arg Cys Asn Gly Lys
 165 170 175
 Gly Asn Glu Pro Gly Thr Lys Val Gln His Cys His Tyr Cys Gly Gly
 180 185 190
 Ser Gly Met Glu Thr Ile Asn Thr Gly Pro Phe Val Met Arg Ser Thr
 195 200 205
 Cys Arg Arg Cys Gly Gly Arg Gly Ser Ile Ile Ile Ser Pro Cys Val
 210 215 220
 Val Cys Arg Gly Ala Gly Gln Ala Lys Gln Lys Lys Arg Val Met Ile
 225 230 235 240
 Pro Val Pro Ala Gly Val Glu Asp Gly Gln Thr Val Arg Met Pro Val
 245 250 255
 Gly Lys Arg Glu Ile Phe Ile Thr Phe Arg Val Gln Lys Ser Pro Val
 260 265 270
 Phe Arg Arg Asp Gly Ala Asp Ile His Ser Asp Leu Phe Ile Ser Ile
 275 280 285
 Ala Gln Ala Leu Leu Gly Gly Thr Ala Arg Ala Gln Gly Leu Tyr Glu
 290 295 300
 Thr Ile Asn Val Thr Ile Pro Pro Gly Thr Gln Thr Asp Gln Lys Ile
 305 310 315 320
 Arg Met Gly Gly Lys Gly Ile Pro Arg Ile Asn Ser Tyr Gly Tyr Gly
 325 330 335
 Asp His Tyr Ile His Ile Lys Ile Arg Val Pro Lys Arg Leu Thr Ser
 340 345 350
 Arg Gln Gln Ser Leu Ile Leu Ser Tyr Ala Glu Asp Glu Thr Asp Val
 355 360 365

Glu Gly Thr Val Asn Gly Val Thr Leu Thr Ser Ser Gly Gly Ser Thr
 370 375 380

Met Asp Ser Ser Ala Gly Ser Lys Ala Arg Arg Glu Ala Gly Glu Asp
 385 390 395 400

Glu Glu Gly Phe Leu Ser Lys Leu Lys Lys Met Phe Thr Ser
 405 410

<210> 11

<211> 387

<212> PRT

<213> Homo sapiens

<400> 11

Val Ser Leu Thr Gly Thr Lys His Asn Pro Phe Ile Cys Thr Ala Ser
 1 5 10 15

Phe His Thr Ser Ala Pro Leu Ala Lys Glu Asp Tyr Tyr Gln Ile Leu
 20 25 30

Gly Val Pro Arg Asn Ala Ser Gln Lys Glu Ile Lys Lys Ala Tyr Tyr
 35 40 45

Gln Leu Ala Lys Lys Tyr His Pro Asp Thr Asn Lys Asp Asp Pro Lys
 50 55 60

Ala Lys Glu Lys Phe Ser Gln Leu Ala Glu Ala Tyr Glu Val Leu Ser
 65 70 75 80

Asp Glu Val Lys Arg Lys Gln Tyr Asp Ala Tyr Gly Ser Ala Gly Phe
 85 90 95

Asp Pro Gly Ala Ser Gly Ser Gln His Ser Tyr Trp Lys Gly Gly Pro
 100 105 110

Thr Val Asp Pro Glu Glu Leu Phe Arg Lys Ile Phe Gly Glu Phe Ser
 115 120 125

Ser Ser Ser Phe Gly Asp Phe Gln Thr Val Phe Asp Gln Pro Gln Glu
 130 135 140

Tyr Phe Met Glu Leu Thr Phe Asn Gln Ala Ala Lys Gly Val Asn Lys
 145 150 155 160

Glu Phe Thr Val Asn Ile Met Asp Thr Cys Glu Arg Cys Asn Gly Lys
 165 170 175

Gly Asn Glu Pro Gly Thr Lys Val Gln His Cys His Tyr Cys Gly Gly
 180 185 190

Ser Gly Met Glu Thr Ile Asn Thr Gly Pro Phe Val Met Arg Ser Thr
 195 200 205

Cys Arg Arg Cys Gly Gly Arg Gly Ser Ile Ile Ile Ser Pro Cys Val
 210 215 220

Val Cys Arg Gly Ala Gly Gln Ala Lys Gln Lys Lys Arg Val Met Ile
 225 230 235 240
 Pro Val Pro Ala Gly Val Glu Asp Gly Gln Thr Val Arg Met Pro Val
 245 250 255
 Gly Lys Arg Glu Ile Phe Ile Thr Phe Arg Val Gln Lys Ser Pro Val
 260 265 270
 Phe Arg Arg Asp Gly Ala Asp Ile His Ser Asp Leu Phe Ile Ser Ile
 275 280 285
 Ala Gln Ala Leu Leu Gly Gly Thr Ala Arg Ala Gln Gly Leu Tyr Glu
 290 295 300
 Thr Ile Asn Val Thr Ile Pro Pro Gly Thr Gln Thr Asp Gln Lys Ile
 305 310 315 320
 Arg Met Gly Gly Lys Gly Ile Pro Arg Ile Asn Ser Tyr Gly Tyr Gly
 325 330 335
 Asp His Tyr Ile His Ile Lys Ile Arg Val Pro Lys Arg Leu Thr Ser
 340 345 350
 Arg Gln Gln Ser Leu Ile Leu Ser Tyr Ala Glu Asp Glu Thr Asp Val
 355 360 365
 Glu Gly Thr Val Asn Gly Val Thr Leu Thr Ser Ser Gly Lys Arg Ser
 370 375 380
 Thr Gly Asn
 385

<210> 12
 <211> 480
 <212> PRT
 <213> Homo sapiens

<400> 12
 Met Ala Ala Arg Cys Ser Thr Arg Trp Leu Leu Val Val Val Gly Thr
 1 5 10 15
 Pro Arg Leu Pro Ala Ile Ser Gly Arg Gly Ala Arg Pro Pro Arg Glu
 20 25 30
 Gly Val Val Gly Ala Trp Leu Ser Arg Lys Leu Ser Val Pro Ala Phe
 35 40 45
 Ala Ser Ser Leu Thr Ser Cys Gly Pro Arg Ala Leu Leu Thr Leu Arg
 50 55 60
 Pro Gly Val Ser Leu Thr Gly Thr Lys His Asn Pro Phe Ile Cys Thr
 65 70 75 80
 Ala Ser Phe His Thr Ser Ala Pro Leu Ala Lys Glu Asp Tyr Tyr Gln
 85 90 95

Ale
 Cont

Ile	Leu	Gly	Val	Pro	Arg	Asn	Ala	Ser	Gln	Lys	Glu	Ile	Lys	Lys	Ala	100	105	110
Tyr	Tyr	Gln	Leu	Ala	Lys	Lys	Tyr	His	Pro	Asp	Thr	Asn	Lys	Asp	Asp	115	120	125
Pro	Lys	Ala	Lys	Glu	Lys	Phe	Ser	Gln	Leu	Ala	Glu	Ala	Tyr	Glu	Val	130	135	140
Leu	Ser	Asp	Glu	Val	Lys	Arg	Lys	Gln	Tyr	Asp	Ala	Tyr	Gly	Ser	Ala	145	150	155
Gly	Phe	Asp	Pro	Gly	Ala	Ser	Gly	Ser	Gln	His	Ser	Tyr	Trp	Lys	Gly	165	170	175
Gly	Pro	Thr	Val	Asp	Pro	Glu	Glu	Leu	Phe	Arg	Lys	Ile	Phe	Gly	Glu	180	185	190
Phe	Ser	Ser	Ser	Ser	Phe	Gly	Asp	Phe	Gln	Thr	Val	Phe	Asp	Gln	Pro	195	200	205
Gln	Glu	Tyr	Phe	Met	Glu	Leu	Thr	Phe	Asn	Gln	Ala	Ala	Lys	Gly	Val	210	215	220
Asn	Lys	Glu	Phe	Thr	Val	Asn	Ile	Met	Asp	Thr	Cys	Glu	Arg	Cys	Asn	225	230	235
Gly	Lys	Gly	Asn	Glu	Pro	Gly	Thr	Lys	Val	Gln	His	Cys	His	Tyr	Cys	245	250	255
Gly	Gly	Ser	Gly	Met	Glu	Thr	Ile	Asn	Thr	Gly	Pro	Phe	Val	Met	Arg	260	265	270
Ser	Thr	Cys	Arg	Arg	Cys	Gly	Gly	Arg	Gly	Ser	Ile	Ile	Ile	Ser	Pro	275	280	285
Cys	Val	Val	Cys	Arg	Gly	Ala	Gly	Gln	Ala	Lys	Gln	Lys	Lys	Arg	Val	290	295	300
Met	Ile	Pro	Val	Pro	Ala	Gly	Val	Glu	Asp	Gly	Gln	Thr	Val	Arg	Met	305	310	315
Pro	Val	Gly	Lys	Arg	Glu	Ile	Phe	Ile	Thr	Phe	Arg	Val	Gln	Lys	Ser	325	330	335
Pro	Val	Phe	Arg	Arg	Asp	Gly	Ala	Asp	Ile	His	Ser	Asp	Leu	Phe	Ile	340	345	350
Ser	Ile	Ala	Gln	Ala	Leu	Leu	Gly	Gly	Thr	Ala	Arg	Ala	Gln	Gly	Leu	355	360	365
Tyr	Glu	Thr	Ile	Asn	Val	Thr	Ile	Pro	Pro	Gly	Thr	Gln	Thr	Asp	Gln	370	375	380
Lys	Ile	Arg	Met	Gly	Gly	Lys	Gly	Ile	Pro	Arg	Ile	Asn	Ser	Tyr	Gly	385	390	395

18

Tyr Gly Asp His Tyr Ile His Ile Lys Ile Arg Val Pro Lys Arg Leu
405 410 415
Thr Ser Arg Gln Gln Ser Leu Ile Leu Ser Tyr Ala Glu Asp Glu Thr
420 425 430
Asp Val Glu Gly Thr Val Asn Gly Val Thr Leu Thr Ser Ser Gly Gly
435 440 445
Ser Thr Met Asp Ser Ser Ala Gly Ser Lys Ala Arg Arg Glu Ala Gly
450 455 460
Glu Asp Glu Glu Gly Phe Leu Ser Lys Leu Lys Lys Met Phe Thr Ser
465 470 475 480

<210> 13
<211> 33
<212> PRT
<213> Homo sapiens

<400> 13
Gly Ser Thr Met Asp Ser Ser Ala Gly Ser Lys Ala Arg Arg Glu Ala
1 5 10 15
Gly Glu Asp Glu Glu Gly Phe Leu Ser Lys Leu Lys Lys Met Phe Thr
20 25 30

Ser

<210> 14
<211> 6
<212> PRT
<213> Homo sapiens

<400> 14
Lys Arg Ser Thr Gly Asn
1 5

<210> 15
<211> 26
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 15
Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly Arg Lys Lys Arg
1 5 10 15
Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser
20 25

<210> 16
 <211> 12
 <212> PRT
 <213> Unknown Organism

<220>
 <223> Description of Unknown Organism: EGF derived
 peptide

<400> 16
 Cys Met His Ile Glu Ser Leu Asp Ser Tyr Thr Cys
 1 5 10

<210> 17
 <211> 12
 <212> PRT
 <213> Unknown Organism

<220>
 <223> Description of Unknown Organism: EGF derived
 peptide

<400> 17
 Cys Met Tyr Ile Glu Ala Leu Asp Lys Tyr Ala Cys
 1 5 10

<210> 18
 <211> 29
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 internalizing peptide

<400> 18
 Glu Ala Ala Leu Ala Glu Ala Leu Ala Glu Ala Leu Ala Glu Ala Leu
 1 5 10 15

Ala Glu Ala Leu Ala Glu Ala Leu Glu Ala Leu Ala Ala
 20 25

<210> 19
 <211> 8
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Illustrative
 peptide

<400> 19
 Gly Asn Ala Ala Ala Arg Arg
 1 5

<210> 20
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 20
 cgagacagat gtggagggga

20

<210> 21
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 21
 gaataattta aacacact

18

<210> 22
 <211> 36
 <212> PRT
 <213> Homo sapiens

<400> 22
 Ser Ser Gly Gly Ser Thr Met Asp Ser Ser Ala Gly Ser Lys Ala Arg
 1 5 10 15
 Arg Glu Ala Gly Glu Asp Glu Glu Gly Phe Leu Ser Lys Leu Lys Lys
 20 25 30
 Met Phe Thr Ser
 35

<210> 23
 <211> 9
 <212> PRT
 <213> Homo sapiens

<400> 23
 Ser Ser Gly Lys Arg Ser Thr Gly Asn
 1 5

<210> 24
 <211> 33
 <212> PRT
 <213> Homo sapiens

<400> 24

Gly	Ser	Thr	Met	Asp	Ser	Ser	Ala	Gly	Ser	Lys	Ala	Arg	Arg	Glu	Ala
1				5					10					15	

Gly	Glu	Asp	Glu	Glu	Gly	Phe	Leu	Ser	Lys	Leu	Lys	Lys	Met	Phe	Thr
			20					25					30		

Ser

<210> 25

<211> 33

<212> PRT

<213> Mus sp.

<400> 25

Gly	Arg	Thr	Met	Asp	Ser	Ser	Ala	Glu	Ser	Lys	Asp	Arg	Arg	Glu	Ala
1				5					10					15	

Gly	Glu	Asp	Asn	Glu	Gly	Phe	Leu	Ser	Lys	Leu	Lys	Lys	Ile	Phe	Thr
			20					25					30		

Ser

<210> 26

<211> 6

<212> PRT

<213> Homo sapiens

<400> 26

Lys	Arg	Ser	Thr	Gly	Asn
1				5	

<210> 27

<211> 6

<212> PRT

<213> Mus sp.

<400> 27

Lys	Arg	Ser	Thr	Gly	Asn
1				5	

<210> 28

<211> 479

<212> PRT

<213> Mus sp.

<220>

<221> MOD_RES

<222> (206)..(224)

<223> Unknown amino acid

<400> 28

Met	Ala	Ala	Trp	Cys	Ser	Pro	Arg	Trp	Leu	Arg	Val	Ala	Val	Gly	Thr
1				5					10					15	

af
Cust

Pro	Arg	Leu	Pro 20			Ala	Ala	Gly	Arg 25		Gly	Val	Gln	Gln	Pro 30		Gln	Gly
Gly	Val	Val 35	Ala	Thr	Ser	Leu	Cys 40	Arg	Lys	Leu	Cys	Val 45		Ser	Ala	Phe		
Gly	Leu 50	Ser	Met	Gly	Ala	His 55	Gly	Pro	Arg	Ala	Leu	Leu	Thr	Leu	Arg			
Pro 65	Gly	Val	Arg	Leu	Thr 70	Gly	Thr	Lys	Ser	Phe 75	Pro	Phe	Val	Cys	Thr 80			
Thr	Ser	Phe	His	Thr 85	Ser	Ala	Ser	Leu	Ala 90	Lys	Asp	Asp	Tyr	Tyr 95	Gln			
Ile	Leu	Gly	Val 100	Pro	Arg	Asn	Ala	Ser 105	Gln	Lys	Asp	Ile	Lys 110	Lys	Ala			
Tyr	Tyr	Gln 115	Leu	Ala	Lys	Lys	Tyr 120	His	Pro	Asp	Thr	Asn 125	Lys	Asp	Asp			
Pro	Lys 130	Ala	Lys	Glu	Lys	Phe 135	Ser	Gln	Leu	Ala	Glu 140	Ala	Tyr	Glu	Val			
Leu 145	Ser	Asp	Glu	Val	Lys 150	Arg	Lys	Gln	Tyr	Asp 155	Ala	Tyr	Gly	Ser	Ala 160			
Gly	Phe	Asp	Pro	Gly 165	Thr	Ser	Ser	Ser	Gly 170	Gln	Gly	Tyr	Trp 175	Arg	Gly			
Gly	Pro	Ser	Val 180	Asp	Pro	Glu	Glu	Leu 185	Phe	Arg	Lys	Ile	Phe 190	Gly	Glu			
Phe	Ser	Ser 195	Ser	Pro	Phe	Gly	Asp 200	Phe	Gln	Asn	Val	Val 205	Xaa	Xaa	Xaa			
Xaa 210	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa 215	Xaa	Xaa	Xaa	Xaa	Xaa 220	Xaa	Xaa	Xaa	Xaa			
Lys 225	Glu	Phe	Thr	Val	Asn 230	Ile	Met	Asp	Thr	Cys 235	Glu	Arg	Cys	Asp	Gly 240			
Lys	Gly	Asn	Glu	Pro 245	Gly	Thr	Lys	Val	Gln 250	His	Cys	His	Tyr	Cys 255	Gly			
Gly	Ser	Gly	Met 260	Glu	Thr	Ile	Asn	Thr 265	Gly	Pro	Phe	Val	Met 270	Arg	Ser			
Thr	Cys	Arg 275	Arg	Cys	Gly	Gly	Arg 280	Gly	Ser	Ile	Ile	Thr 285	Asn	Pro	Cys			
Val 290	Val	Cys	Arg	Gly	Ala	Gly 295	Gln	Ala	Lys	Gln	Lys 300	Lys	Arg	Val	Thr			
Ile 305	Pro	Val	Pro	Ala	Gly 310	Val	Glu	Asp	Gly	Gln 315	Thr	Val	Arg	Met	Pro 320			

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Thr	Ser	Phe	His	Thr	Ser	Ala	Ser	Leu	Ala	Lys	Asp	Asp	Tyr	Tyr	Gln	85	90	95
Ile	Leu	Gly	Val	Pro	Arg	Asn	Ala	Ser	Gln	Lys	Asp	Ile	Lys	Lys	Ala	100	105	110
Tyr	Tyr	Gln	Leu	Ala	Lys	Lys	Tyr	His	Pro	Asp	Thr	Asn	Lys	Asp	Asp	115	120	125
Pro	Lys	Ala	Lys	Glu	Lys	Phe	Ser	Gln	Leu	Ala	Glu	Ala	Tyr	Glu	Val	130	135	140
Leu	Ser	Asp	Glu	Val	Lys	Arg	Lys	Gln	Tyr	Asp	Ala	Tyr	Gly	Ser	Ala	145	150	155
Gly	Phe	Asp	Pro	Gly	Thr	Ser	Ser	Ser	Gly	Gln	Gly	Tyr	Trp	Arg	Gly	165	170	175
Gly	Pro	Ser	Val	Asp	Pro	Glu	Glu	Leu	Phe	Arg	Lys	Ile	Phe	Gly	Glu	180	185	190
Phe	Ser	Ser	Ser	Pro	Phe	Gly	Asp	Phe	Gln	Asn	Val	Val	Xaa	Xaa	Xaa	195	200	205
Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	210	215	220
Lys	Glu	Phe	Thr	Val	Asn	Ile	Met	Asp	Thr	Cys	Glu	Arg	Cys	Asp	Gly	225	230	235
Lys	Gly	Asn	Glu	Pro	Gly	Thr	Lys	Val	Gln	His	Cys	His	Tyr	Cys	Gly	245	250	255
Gly	Ser	Gly	Met	Glu	Thr	Ile	Asn	Thr	Gly	Pro	Phe	Val	Met	Arg	Ser	260	265	270
Thr	Cys	Arg	Arg	Cys	Gly	Gly	Arg	Gly	Ser	Ile	Ile	Thr	Asn	Pro	Cys	275	280	285
Val	Val	Cys	Arg	Gly	Ala	Gly	Gln	Ala	Lys	Gln	Lys	Lys	Arg	Val	Thr	290	295	300
Ile	Pro	Val	Pro	Ala	Gly	Val	Glu	Asp	Gly	Gln	Thr	Val	Arg	Met	Pro	305	310	315
Val	Gly	Lys	Arg	Glu	Ile	Phe	Val	Thr	Phe	Arg	Val	Gln	Lys	Ser	Pro	325	330	335
Val	Phe	Arg	Arg	Thr	Cys	Ala	Asp	Ile	His	Ser	Asp	Leu	Phe	Ile	Ser	340	345	350
Ile	Ala	Gln	Ala	Ile	Leu	Gly	Gly	Thr	Ala	Lys	Ala	Gln	Gly	Leu	Tyr	355	360	365
Glu	Thr	Ile	Asn	Val	Thr	Ile	Pro	Ala	Gly	Ile	Gln	Thr	Asp	Gln	Lys	370	375	380

Ile Arg Leu Thr Gly Lys Gly Ile Pro Arg Ile Asn Ser Tyr Gly Tyr
 385 390 395 400

Gly Asp His Tyr Ile His Ile Lys Ile Arg Val Pro Lys Arg Leu Ser
 405 410 415

Ser Arg Gln Gln Asn Leu Ile Leu Ser Tyr Ala Glu Asp Glu Thr Asp
 420 425 430

Val Glu Gly Thr Val Asn Gly Val Thr His Thr Ser Thr Gly Lys Arg
 435 440 445

Ser Thr Gly Asn
 450

*Calc
 Check*